

WHAT IS CLAIMED IS:

- 1 1. A method of call queuing utilization reporting implemented
2 in a telecommunications advanced intelligent network, the method comprising:
3 receiving a plurality of calls to access a subscriber line;
4 placing each received call in a queue associated with the subscriber
5 line if the subscriber line is busy, the queue implemented within the
6 telecommunications network;
7 collecting queue utilization information about each queued call; and
8 generating queue utilization statistics based on the collected queue
9 utilization information.
- 1 2. A method of call queuing utilization reporting as in claim 1
2 wherein collecting queue utilization information is performed by at least one service
3 control point.
- 1 3. A method of call queuing utilization reporting as in claim 2
2 wherein generating queue utilization statistics is performed by a data server in
3 communication with each service control point collecting queue utilization
4 information.
- 1 4. A method of call queuing utilization reporting as in claim 3
2 wherein the data server aggregates information for each of a plurality of subscribers.
- 1 5. A method of call queuing utilization reporting as in claim 1
2 wherein placing each received call in the queue is performed by an intelligent
3 peripheral.
- 1 6. A method of call queuing utilization reporting as in claim 1
2 further comprising formatting the queue utilization statistics for access by a
3 subscriber over the Internet.

1 7. A method of call queuing utilization reporting as in claim 1
2 further comprising sending queue utilization statistics to a subscriber.

1 8. A method of call queuing utilization reporting as in claim 1
2 further comprising:
3 aggregating subscriber data across a plurality of report periods; and
4 calculating utilization information based on the aggregated data.

1 9. A system for reporting utilization of subscriber line call
2 queues, the system comprising:
3 a plurality of intelligent peripherals, each intelligent peripheral
4 implementing at least one call queue, each call queue associated with one of a
5 plurality of subscribers;
6 at least one service control point, each intelligent peripheral in
7 communication with one of the at least one service control point collecting
8 information about each queued call; and
9 a data server in communication with the at least one service control
10 point, the data server aggregating queue utilization data for each subscriber.

1 10. A system for reporting utilization of subscriber line call
2 queues as in claim 9 further comprising at least one central office switch in electrical
3 communication with at least one of a plurality of subscriber switches, the intelligent
4 peripheral operative to place a call to the central office switch for receipt by a
5 subscriber having a call placed in queue, the call placed by the intelligent peripheral
6 in response to a determination that a line associated with the subscriber is idle.

1 11. A system for reporting utilization of subscriber line call
2 queues as in claim 9 further comprising at least one data distributor, each data
3 distributor in communication with a service control point and the data server, each
4 data distributor receiving information about each queued call from the service
5 control point and periodically forwarding the information to the data server.

1 12. A system for reporting utilization of subscriber line call
2 queues as in claim 9 further comprising a data publishing platform in communication
3 with the data server, the data publishing platform aggregating subscriber queue
4 utilization data across a plurality of report periods.

1 13. A system for reporting utilization of subscriber line call
2 queues as in claim 12 wherein the data publishing platform further calculates
3 utilization statistics based on the aggregated subscriber utilization data.

1 14. A system for reporting utilization of subscriber line call
2 queues as in claim 12 wherein the data publishing platform provides queue
3 utilization reports to a subscriber computer.

1 15. A system for reporting utilization of subscriber line call
2 queues as in claim 14 wherein the queue utilization reports are sent over the Internet
3 to the subscriber.

1 16. A method of reporting utilization of call queues, each call
2 placed from a caller to a subscriber line, the call processed by an Advanced
3 Intelligent Network (AIN) having at least one central office switch and a service
4 control point (SCP) in electrical communication with a plurality of subscriber
5 switches via a signaling network, the method comprising:
6 providing an intelligent peripheral in electrical communication with
7 the at least one central office switch and the SCP, the intelligent peripheral equipped
8 with call queuing functionality;
9 receiving each of a plurality of calls to access the subscriber line;
10 for each call, determining that the subscriber line is busy;
11 queuing each call in the intelligent peripheral if the subscriber line is
12 busy;
13 collecting queue utilization information about each queued call in the
14 service control point; and
15 generating queue utilization statistics based on the collected queue
16 utilization information.

1 17. A method of reporting utilization of call queues in claim 16,
2 the method further comprising:
3 monitoring the subscriber line to notify the SCP when the line is idle;
4 placing a call from the intelligent peripheral to the subscriber in
5 response to a determination that the subscriber line is idle;
6 forwarding answer supervision to the intelligent peripheral in
7 response to the call from the intelligent peripheral being answered by the subscriber;
8 and
9 transferring and connecting the subscriber and the caller at the central
10 office switch.

1 18. A method of reporting utilization of call queues in claim 16,
2 the method further comprising:
3 monitoring call signaling to detect a termination attempt trigger;
4 launching a query at the SCP for receipt by the intelligent peripheral
5 requesting the queue status of the subscriber line in response to the detected
6 termination attempt trigger;
7 forwarding the call to the intelligent peripheral to be added to the
8 queue in response to a determination that the queue is active;
9 delivering the call to the subscriber and setting a next event list
10 trigger to determine the status of a subscriber line in response to a determination that
11 the queue is empty;
12 connecting the call to the subscriber line in response to a
13 determination that the line is idle; and
14 forwarding the call to the intelligent peripheral to be placed in queue
15 in response to a determination that the subscriber line is busy.

1 19. A method of reporting utilization of call queues in claim 16
2 wherein generating queue utilization statistics is performed by a data server in
3 communication with the service control point.

1 20. A method of reporting utilization of call queues in claim 19
2 wherein the data server aggregates information for each of a plurality of subscribers.

1 21. A method of reporting utilization of call queues in claim 16,
2 the method further comprising formatting the queue utilization statistics for access
3 by a subscriber over the Internet.

1 22. A method of reporting utilization of call queues in claim 16,
2 the method further comprising sending queue utilization statistics to the subscriber.

1 23. A method of reporting utilization of call queues in claim 16,
2 the method further comprising:
3 aggregating subscriber data across a plurality of report periods; and
4 calculating utilization information based on the aggregated data.

1 24. For use in an Advanced Intelligent Network (AIN) equipped
2 with termination attempt trigger (TAT) capability, the AIN having at least one
3 central office switch and a service control point (SCP) in electrical communication
4 with a plurality of subscriber switches via a signaling network, a method of
5 reporting utilization of queuing of a plurality of telephone calls from a caller to a
6 subscriber telephone line comprising:

7 providing an intelligent peripheral in electrical communication with
8 the central office switch and the SCP, the intelligent peripheral equipped with
9 queuing functionality for each of the subscribers;

10 monitoring signaling to detect a TAT;

11 generating a first electrical signal for receipt by the SCP in response
12 to the detected TAT;

13 generating a second electrical signal at the SCP for receipt by the
14 intelligent peripheral requesting status of a queue associated with the subscriber line;

15 generating a third electrical signal at the SCP for receipt by the
16 subscriber switch instructing the subscriber switch to forward the call to the
17 intelligent peripheral to be added to the queue in response to a determination that the
18 queue is active;

19 collecting queue utilization information about each queued call; and
20 generating queue utilization statistics based on the collected queue
21 utilization information.

1 25. The method of claim 24 wherein the AIN is further equipped
2 with Next Event List (NEL) functionality, the method further comprising:
3 generating a fourth electrical signal at the SCP for receipt by the
4 subscriber switch instructing the subscriber switch to deliver the call to the
5 subscriber and to set a NEL to determine the status of the subscriber line in response
6 to a determination that the queue is empty; and
7 connecting the call to the subscriber line in response to a
8 determination that the subscriber line is idle.

1 26. The method of claim 24 further comprising:
2 generating a fifth electrical signal at the subscriber switch for receipt
3 by the SCP in response to a determination that the subscriber line is busy;
4 generating a sixth electrical signal at the SCP for receipt by the
5 subscriber switch instructing the subscriber switch to forward the call to the
6 intelligent peripheral to be placed in the queue;
7 generating a seventh electrical signal at the SCP for receipt by the
8 subscriber switch instructing the subscriber switch to set a monitor on the subscriber
9 line and to notify the SCP when the line is idle;
10 generating an eighth electrical signal at the subscriber switch for
11 receipt by the SCP in response to a determination that the subscriber line is idle;
12 generating a ninth electrical signal at the SCP for receipt by the
13 intelligent peripheral instructing the intelligent peripheral to call the subscriber via
14 the central office switch;
15 generating a tenth electrical signal at the central office switch for
16 receipt by the intelligent peripheral to forward answer supervision to the intelligent
17 peripheral in response to the call being answered by the subscriber; and
18 generating an eleventh electrical signal at the intelligent peripheral for
19 receipt by the central office switch to transfer and connect the subscriber and the
 caller at the central office switch.